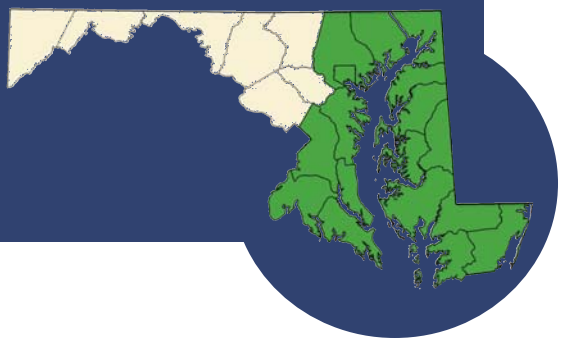
Coastal Hazards

Maryland Coastal Program



The Issue...

Maryland's coastline, extending over 7,000 miles along the diverse landscapes of the Chesapeake Bay, the Coastal Bays, and the Atlantic Coast, is highly susceptible to coastal hazards. Given the mixture of coastal environments, the magnitude of impact resulting predominantly from coastal flooding and shore erosion varies from region to region. Coastal hazards in Maryland are both episodic and chronic in nature, resulting from meteorological events (hurricanes, nor'easters, floods and storms surge) or geological processes (sea level rise and erosion). Water and wind damage resulting from these hazards pose substantial threats to natural resources, infrastructure, and communities throughout coastal Maryland.

As evidenced by Tropical Storm Isabel, which passed through the Chesapeake Bay region in September 2003, the impact of a single coastal flood event to the State's economy and natural resources can be tremendous. Maryland's low-lying coastal plain on the Eastern Shore, it's barrier islands along the Atlantic Ocean and Coastal Bays, as well as the unconsolidated soils that comprise the steep-cliffs along the western rim of the Chesapeake Bay make the State particularly susceptible to both coastal flooding and shoreline erosion. The State is currently losing approximately 260 acres of land each year to shore erosion.

Complicating the coastal hazard scenario in the State is the fact that sea level is rising. The impacts of both shore erosion and coastal flooding are compounded by sea level rise, which as a causal force intensifies and prolongs on-going coastal processes and extreme events. The average rate of sea level rise in Maryland is, historically, between 3-4 mm per year or 1 foot per century; a rate nearly twice the global average. Current scientific research, however, indicates that sea level rise rates are accelerating and may result in as much as two to three feet of rise along Maryland's shores by the year 2100.

The State's Involvement...

Numerous federal and state agencies, including the Federal Emergency Management Agency, the U.S. Army Corps of Engineers, the Maryland Emergency Management Agency, the Maryland Department of the Environment, and the Maryland Department of Natural Resources work together with local governments to coordinate hazard preparedness, response, recovery and mitigation efforts in Maryland. Tropical Storm Isabel put the State's hazard planning and response capacity to a test, and the storm's overwhelming impact to coastal communities in the Chesapeake Bay has given planners a renewed sense of purpose.

The Coastal Program's Role...

The Coastal Program has taken a leadership role in advancing coastal hazard planning, policy and research initiatives at both the State and local level. Coastal hazard planning has been a central focus of the Program for the last five years. The Program is currently providing a considerable amount of technology, data and research support, as well as much-needed local government assistance and public outreach.

Significant Accomplishments and Priorities...

A Sea Level Rise Response Strategy. The Coastal Program hosted a NOAA Coastal Management Fellow (1998-2000) to develop a "Sea Level Rise Response Strategy for the State of Maryland." The Strategy set forth both short and long-term objectives, along with key activities, to address the three primary impacts of sea level rise (erosion, flooding and inundation), and the resulting environmental and socioeconomic implications of each. Implementation of a number of key activities is underway, including: the acquisition of high-resolution topographic data (LIDAR), the completion of historic shoreline position maps, the state-wide calculation of historic erosion rates, and the development of pilot studies in three low-lying coastal areas to assess the potential economic impact of sea level rise induced flooding and inundation.

High Resolution Topographic Data. As part of a data acquisition strategy for all of coastal Maryland, the Coastal Program has funded the acquisition of high-resolution elevation data for counties on the lower eastern shore. This data, when processed, will provide planners with much greater resolution and accuracy in determining areas exposed to flood risks and future sea level rise inundation. The data can also be used to identify shoreline positions and potential wetland migration areas. The data meets or exceeds federal standards for flood insurance rate maps. Processing and formatting the data is still needed, however the Program has dedicated funds to initiate the formatting process.

Coastal Bays Hazards Initiative. In February 2004, the Coastal Bays Policy Committee comprised of the Secretaries of the Departments of Natural Resources, Planning, Environment, and Agriculture; Mayor of Ocean City; Worcester County Commissioners; Environmental Protection Agency Regional Administrator; Superintendent of Assateague National Seashore; and citizens, directed the formation of a Task Force to develop recommendations within six months on the most effective, efficient and economical means to integrate new hazard planning technologies into existing planning processes. The work of the Task Force is expected to lay the groundwork for extending the application of the tools and products throughout the State.

Strategic Shore Erosion Assessment (SSEA). Pursuant to the recommendations of the Shore Erosion Task Force (October 2000) and the Coastal Program CZMA Section 309 Enhancement Strategy, the Coastal Program is developing a means to analyze erosion based on-site specific information related to the magnitude of erosion, environmental sensitivity, and impacts to public and private infrastructure. SSEA will provide federal, state and local governments the means to prioritize and target public assistance for shore erosion control, identify the presence of environmental features to incorporate into project design, and determine the stabilization/restoration potential of areas with high ecological value.

Updated Shoreline Change and Rate Maps. With Coastal Program funding, the Maryland Geological Survey recently completed the first state-wide reassessment of shoreline changes since 1974. The updated erosion and accretion rates will be of use to planners and property owners, alike. This information will be available in paper map form, CD-ROM, and on the Internet in late-2004.

Local Hazard Mitigation Plans. Through a competitive grant process, two Maryland counties received support to further develop and expand the coastal aspects of their local hazard mitigation plans. Baltimore and Prince George's Counties concentrated on coastal flooding in their respective counties to improve future hazard management and mitigation responses. The plans will dovetail with ongoing efforts by state and federal emergency management agencies to create all hazard mitigation plans for all state and local entities throughout the country.

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